

**SAFETY INSPECTION REPORT AND COMPLIANCE INSPECTION**

1. LICENSEE/LOCATION INSPECTED:  Botsford General Hospital 28050 Grand River Avenue Farmington Hills, MI 48336-5933  REPORT NUMBER(S) 16-001	2. NRC/REGIONAL OFFICE  Region III U. S. Nuclear Regulatory Commission 2443 Warrenville Rd, Suite 210 Lisle, IL 60532
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3. DOCKET NUMBER(S)  030-02077	4. LICENSE NUMBER(S)  21-08892-01	5. DATE(S) OF INSPECTION  March 31, 2016 <i>2</i> April 1, 2016
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**LICENSEE:**  
 The inspection was an examination of the activities conducted under your license as they relate to radiation safety and to compliance with the Nuclear Regulatory Commission (NRC) rules and regulations and the conditions of your license. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector. The inspection findings are as follows:

1. Based on the inspection findings, no violations were identified.

2. Previous violation(s) closed.

3. The violation(s), specifically described to you by the inspector as non-cited violations, are not being cited because they were self-identified, non-repetitive, and corrective action was or is being taken, and the remaining criteria in the NRC Enforcement Policy, to exercise discretion, were satisfied.

\_\_\_\_\_ Non-cited violation(s) were discussed involving the following requirement(s):

4. During this inspection, certain of your activities, as described below and/or attached, were in violation of NRC requirements and are being cited in accordance with NRC Enforcement Policy. This form is a NOTICE OF VIOLATION, which may be subject to posting in accordance with 10 CFR 19.11.  
 (Violations and Corrective Actions)

**Statement of Corrective Actions**

I hereby state that, within 30 days, the actions described by me to the Inspector will be taken to correct the violations identified. This statement of corrective actions is made in accordance with the requirements of 10 CFR 2.201 (corrective steps already taken, corrective steps which will be taken, date when full compliance will be achieved). I understand that no further written response to NRC will be required, unless specifically requested.

TITLE	PRINTED NAME	SIGNATURE	DATE
LICENSEE'S REPRESENTATIVE			
NRC INSPECTOR	Zahid Sulaiman, Health Physicist	<i>Zahid Sulaiman</i>	4/1/16
BRANCH CHIEF	Aaron T. McCraw, Chief, MIB	<i>[Signature]</i>	4/8/16

**SAFETY INSPECTION REPORT AND COMPLIANCE INSPECTION**

1. LICENSEE/LOCATION INSPECTED:

Botsford General Hospital  
28050 Grand River Avenue  
Farmington Hills, MI 48336-5933

REPORT NUMBER(S) 16-001

2. NRC/REGIONAL OFFICE

Region III  
U. S. Nuclear Regulatory Commission  
2443 Warrenville Rd, Suite 210  
Lisle, IL 60532

3. DOCKET NUMBER(S)

030-02077

4. LICENSE NUMBER(S)

21-08892-01

5. DATE(S) OF INSPECTION

March , 2016

(Continued)

**Docket File Information**

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6. INSPECTION PROCEDURES USED  87131 & 87132	7. INSPECTION FOCUS AREAS  03.01-03.07
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**SUPPLEMENTAL INSPECTION INFORMATION**

1. PROGRAM CODE(S)  02230	2. PRIORITY  2	3. LICENSEE CONTACT  Timothy Allen McKnight, D.O.,RSO	4. TELEPHONE NUMBER  (248) 471-8100
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Main Office Inspection      Next Inspection Date: 04/01/2018  
 Field Office Inspection \_\_\_\_\_  
 Temporary Job Site Inspection \_\_\_\_\_

**PROGRAM SCOPE**

This was a routine inspection of a 330-bed hospital, authorized under NRC license to use byproduct materials for medical uses permitted by 10 CFR 35.100, 35.200, 35.300, and 35.600. The nuclear medicine department was staffed with two full-time and a part-time nuclear medicine technologists (NMT) and one PRN who performed approximately 200 diagnostic nuclear medicine procedures monthly. The licensee received unit doses, bulk Tc-99m, and I-131 capsules from a licensed radiopharmacy. Doses were primarily Tc-99m for bone scan, Hida, MUGA, lung scan using Xe-133, gastric emptying, cardiac, and other studies. The nuclear medicine department performed approximately 12 I-131 therapy procedures and 9 Ra-223 Xofigo treatments per year.

The radiation oncology department was staffed with a full-time oncologist, an authorized medical physicist (AMP), two dosimetrists, and four radiation therapists. The licensee conducted approximately 250 high dose-rate brachytherapy (HDR) treatments per year. The majority of treatments conducted were for prostate, breast, gynecological, and some skin cancers. The HDR sources were exchanged quarterly, with the most recent source received on March 11, 2016.

**Performance Observations:**

No administrations of licensed material were observed during this inspection. Interviews of available staff revealed an adequate level of understanding of emergency and material handling procedures and techniques. The inspector: (1) observed the NMT conduct a physical inventory of sealed sources and all sources were accounted for; (2) had the NMT demonstrate the dose calibrator constancy check, package receiving and check-in procedures, the end of the day daily and weekly area surveys, and proper handling of radioactive waste and disposal procedures. The inspector reviewed radiation safety committee minutes, program audits conducted by an outside consultant every quarter, and leak test report, with no findings. The inspector had the AMP demonstrate the HDR unit's: (1) security of licensed material; (2) daily spot checks; (3) emergency equipment and procedures; (4) safety procedures and instructions; (5) door interlock system; and (6) radiation monitoring equipment. The inspector reviewed selected I-131, Ra-223 Xofigo, and HDR written directives and treatment plans, with no issues noted. The inspector reviewed dosimetry records for 2014 and 2015, indicating the maximum annual dose to be 169 mrem - DDE, and 174 mrem - SDE, and performed independent radiation measurements of the hot lab, imaging, and stress room areas that were consistent with the licensee's survey results and within regulatory limits.

No violations of NRC requirements were identified during this inspection.